to say that the quality of the teaching in any institution must depend upon the qualifications of the teachers, and that none of the three Colleges I have named need shrink from a comparison in this respect with any Government school at present in existence.

In answer to these considerations it might perhaps be urged that it is the duty of Government to secure efficient public servants, and that they are not called upon to consider how far private institutions are benefited or injured by the means that appear necessary for this purpose. To this I reply that, even adopting for the sake of argument this point of view, it is the imperative duty of Government not to spend public funds in doing what is already well done by private effort; and that, if anything was required which is not already supplied, public money would be far more productively expended in helping existing institutions to supply the defect, than in founding a new institution which will have to be supported entirely at the national expense. The obviously proper plan is for Government to test the qualifications of candidates for the public service with any degree of strictness they may think proper, but not to burden the country with the expense of educating them.

Perhaps, however, the assumption with which I started may be entirely wrong, and the proposed Engineering College may be intended to supply only a purely professional training. If this be so, there is even less to be said for it than before. In this case it will be merely a "Technical School," attempting to impart the knowledge and experience which can only be really acquired by actual practice under a working engineer.

In any case it seems strange that Government should announce its intention of establishing an Engineering College at the very time when a Royal Commission is making "inquiry with regard to Scientific Instruction, ... and the aid thereto derived from grants voted by Parliament."

University College, London, Aug. 15   G. C. FOSTER

OUR SALAD HERBS

THERE is perhaps no country in the world so rich as England in native materials for salad-making, and none in which ignorance and prejudice have more restricted their employment. At every season of the year the peasant may cull from the field and hedge-row wholesome herbs which would impart a pleasant variety to his monotonous meal, and save his store of potatoes from premature exhaustion; and there can be no question that in hot seasons a judicious admixture of fresh green food is as salutary as it is agreeable. Much has been said lately about the advantage which the labouring man would derive from an accurate acquaintance with the various sorts of fungus, and he has been gravely told that the *Fistulina hepatica* is an admirable substitute for beef-steak, and the *Agaricus gambosus* for the equally unknown veal cutlet. But deep-rooted suspicion is not easily eradicated, and there will always be a certain amount of hazard in dealing with a class of products in which the distinctions between noxious and innocuous are not very clearly marked. There is not this difficulty with regard to salad herbs, and we conceive that the diffusion of a little knowledge as to their properties and value would be an unmixed benefit to our rural population.

The first place must be assigned, on the score of antiquity, to the sorrel plant (*Rumex acetosa*), which in some districts still preserves the name of "green sauce," assigned to it in early times when it formed almost the only dinner vegetable. Its acid is pleasant and wholesome, and more delicate in flavour than that of the wood-sorrel (*Oxalis acetosa*), which, however, is used for table purposes in France and Germany. Chervil (*Anthriscus cerefolium*) is often found in a wild state and is an admirable addition to the salad bowl; and it is unnecessary to enlarge upon the virtues of celery (*Apium graveolens*) when improved by cultivation. John Ray, writing in 1663, says that "The Italians use several herbs for sallets which are not yet, or have not been used lately, but in England, viz., *selleri*, which is nothing else but the sweet smallage; the young shoots whereof, with a little of the head of the root cut off, they eat raw with oil and pepper;" and to this we may add that the alisander (*Smyrnium olusatrum*) is no bad substitute for its better known congener. The dandelion, which in France is blanched for the purpose, affords that *amari aliquid* which the professed salad maker finds in the leaves of the endive, and the same essential ingredient may be supplied by the avens (*Geum urbanum*), the bladder campion (*Silene inflata*), and the tender shoots of the wild hop. Most people are familiar with the properties of the water cress (*Nasturtium officinale*), and the garlic hedge mustard (*Erysimum alliaria*); but it may not be generally known that the common shepherd's purse (*Capsella bursa-pastoris*) and Lady's smock (*Cardamine pratensis*) are pleasant additions, whose merits have long been recognised by our foreign neighbours. In fact there is scarcely a herb that grows which has not some culinary virtue in a French peasant's eyes. Out of the blanched shoots of the wild chicory (*Cichorium intybus*), he forms the well-known *Barbe des Capucins*, and dignifies with the title of *Salade de Chanoine* our own neglected corn salad (*Fedia olitoria*). It would be very easy to extend the dimensions of our list of native salad herbs, for there are, perhaps, some palates to which the strong flavours of the chive (*Allium schœnoprasum*) and stone-crop (*Sedum reflexum*) may commend themselves, but enough has been said to show that Nature has not dealt niggardly with us, and that only knowledge is needful to make the riches she offers available. If the British peasant can be taught to discover hidden virtues in these plants with whose outward forms he has had life-long familiarity, we do not despair of his acquiring the one secret of salad-making, viz., the judicious employment of oil so as to correct the acrid juices of the plants and yet preserve their several flavours unimpaired.   C. J. ROBINSON

TESTIMONIAL TO PROF. MORRIS, F.G.S.

THE presentation of a testimonial to Prof. Morris on July 14, was the occasion of the meeting of nearly one hundred gentlemen, occupying prominent positions in connection with geology and the allied sciences.

Sir Roderick I. Murchison, Bart., K.C.B., occupied the chair, and, in opening the business of the day, expressed the sincere gratification he experienced in having been requested by the subscribers to this Testimonial to act as Chairman on an occasion when it was sought to do honour to Prof. Morris, whom he highly esteemed as a geologist, and whom he loved as a friend. He then gave a sketch of the career of Prof. Morris as a geologist, showing that in his earlier researches he was among the first to make most valuable communications upon the structure and fossil contents of the Tertiary formation of the South and East of England; and how he next threw much new light upon various members of the Oolitic formation and the Lias, describing the fossil contents with great acumen and ability. These were followed by his *opus magnum*, the "Catalogue of all British Fossils," which had gone through two editions, and was a work which would for ever hold a high place in science, as a truthful record of the succession of all classes of known animals from the earliest traces of life to those of the youngest Tertiary formations connecting ancient with existing nature.

The address was then presented, as follows:—

To John Morris, Esq., F.G.S., Professor of Geology in
University College, London.

We, the undersigned, Friends and Cultivators of Geology, taking into consideration the degree in which this science has been advanced by your long and successful labours, are desirous of offering to you a Testimonial of the high estimation in which they are held. Always working in the field, and classifying public and private collections, you have for many years been among the foremost and most diligent of the Students o

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Geology and Palæontology; your careful publications have their places among those of the Masters in every geological library; and your thoughtful lectures live, and will live, in the minds of your scholars. We shall be happy if by this Testimonial you may be encouraged to persevere in a course alike honourable to yourself and advantageous to the public, and that it may be pleasant for you in future years to remember that among the names to be submitted to you are many of those who have known and shared and been instructed by your labours.

"*Forsan et hæc olim meminisse juvabit.*"

Mr. Prestwich said: I have known Prof. Morris now some 35 years, and I can truly say that a more earnest geologist, and one more ready to impart to others the great and varied information he himself possesses, there cannot exist. His aim has ever been to spread a knowledge of that science which he has cultivated with so much pleasure and so much success. Often, too, regardless of other considerations, his first object has always been the free, and, if possible, the gratuitous diffusion of geological science—possibly too much so. Still, if he has failed often to secure his reward in *£ s. d.*, he has always secured the respect, esteem, and affection of his friends, and of all with whom he has worked. With most men the prospect of a good fee would be an incitation to work, but with my good friend Morris the surest way, I believe, to get him to work was too often to say that no fee or remuneration would attach to it. His first introduction years ago was by a valued mutual friend, Mr. Lonsdale, who suggested that a work on the Tertiary Geology of the London Basin was needed, and he thought that Prof. Morris might undertake the palæontological and I the stratigraphical part. I am inclined to believe that Mr. Morris must have considered the work as likely possibly to be remunerative, as, though taken up warmly at the time, the first chapter still remains unwritten. This testimonial is, I feel, but a small earnest of our feelings towards Prof. Morris. For the opportunity thus afforded of expressing our good wishes towards our friend, we have to thank the *Mining Journal* for the publicity it has given to the matter, and for an active part in the management we are, I believe, indebted to Mr. Hearn, whilst Mr. Milnes has kindly acted as treasurer for the fund, which for Prof. Morris's sake I only wish had been doubled.

The meeting was then addressed by Mr. Hearn, and Prof. Tennant, and a letter was read from the venerable Prof. Sedgwick; and Prof. Morris made an eloquent reply, in the course of which he said: It is with deep and sincere feeling that I thank you and the members of the Geological Society, and other friends, for the handsome testimonial which I have received at your hands this day. I not only thank you for the kind manner with which you have expressed yourself, but I recall with pleasure the encouragement to pursue my labours you gave me more than 25 years since from that chair when President of the society, in 1842, and still more so when in after years your kind suggestion induced me to become a candidate for, and your strong recommendation placed me in, the position I now hold at University College, the duties of which, during the last 15 years, I have earnestly endeavoured to fulfil, so that I trust you have had no cause to regret the confidence you then placed in me.

Prof. Sedgwick's letter was as follows:—

"The infirmities of old age make it impossible for me to attend the public meeting at the rooms of the Geological Society. This is to me a great sorrow, for no one can value Prof. Morris's most laborious and most useful palæontological works at a higher price then I have done. And I honour him not merely as a man of science but also as a kind personal friend, who has for many years taken his place in the first rank of practical English geologists. Pray present to him my heartfelt congratulations, which the load of 85 years, and a great infirmity of sight and hearing, will prevent me from offering personally."

The meeting then separated.

WHEAT RUST AND BERBERRY RUST

THE theory has long been prevalent among practical agriculturists that the proximity of berberry trees produces rust in wheat. Men of science, unable to trace herein the sequence of cause and effect, long derided the idea, and placed it among the prejudices of the agricultural mind. The facts of the farmer have, however, been too strong for the science of the botanist, and experience has won the day over theory. Let us trace for a moment the history of the inquiry. The first reference to the injurious influence of the berberry on corn appears in Krünitz's Encyclopædia, published in 1774. Marshall, in 1781, speaks of the berberry having been extirpated in Norfolk for this reason, and Schöpf, in 1788, mentions the same idea as prevalent in New England. Other writers of the same period give similar testimony; and in 1806 Sir Joseph Banks writes thus in the *Annals of Botany*:—"It has long been admitted by farmers, though scarcely credited by botanists, that wheat in the neighbourhood of a berberry bush seldom escapes the blight. The village of Rollesby, in Norfolk, where berberries abound, and wheat seldom succeeds, is called by the opprobrious appellation of 'Mildew-Rollesby.' Some observing men have lately attributed this very perplexing effect to the farina (pollen) of the flowers of the berberry, which is in truth yellow, resembling in some degree the appearance of the rust, or what is presumed to be the blight in its early state. It is, however, notorious to all botanical observers that the leaves of the berberry are very subject to the attacks of a yellow parasitic fungus, larger, but otherwise much resembling the rust in corn. Is it not more than possible that the parasitic fungus of the berberry and that of wheat are of the same species, and that the seed is transferred from the berberry to the corn?" The acute suggestion thrown out by Sir Joseph Banks, at a time when so little was accurately known of the structure of fungi, was not followed out for half a century; it was reserved for the German fungologist, De Bary, within the last few years to establish the truth of his theory, and to prove the existence of the

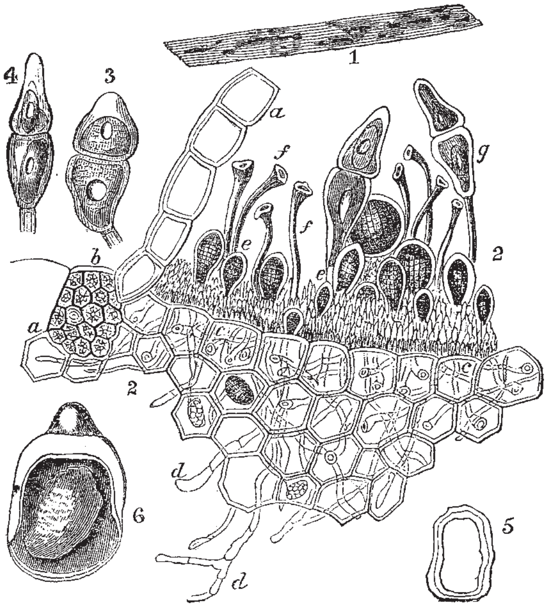

FIG. A.—*Puccinia graminus*, Pers. 1. Leaf of grass, with mildew, natural size. 2. Section of the leaf, with a patch of mildew and rust: *a*, epidermis of the leaf; *b*, bast-cell-nerves; *c c*, outer layer of cells of the leaf, on which the parasite rests; *d d*, mycelium; *e e*, young and old spores of *Cæoma lineare*; *f f*, stalks from which the spores have fallen off; *g*, spores of the *Puccinia*. 3, 4. Spores. 5. Section of the wall of the lower spore-cell. 6. Longitudinal section of the upper spore-cell with the spore-nucleus. (2 – 6 magnified.)

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